

3.4 PLANTS and ANIMALS

This section documents the results of field investigations and assessment of the existing plant and animal communities of the project site. Baseline biological information is provided for wildlife and vegetation of parks and open space habitats. This information supplements a delineation of the off-site wetland directly west of the project site (see Appendix B of this Draft EIS). A characterization of habitats in the vicinity parks, is also provided.

As part of the initial investigation, the plant communities on the project site and surrounding parks were inventoried, classified, and described through a review of existing federal, state, and local mappings, interpretation of aerial photographs, and field surveys. Present land-use patterns at the site and on surrounding lands were noted from available aerial photographs and direct observations in the field.

On December 20, 2002, Raedeke Associates, Inc. personnel investigated the Salmon Creek 1 wetland, which is adjacent to the west boundary of the project site, to describe and classify the existing wetland and upland cover types. Salmon Creek 1 wetland is also known as the White Center Neighborhood Pond and the White Center Bog. On January 23, 2003, biologists investigated, described, and classified vegetation communities and recorded wildlife use of the project site and vicinity parks. The Braun-Blanquet cover-abundance scale (**Table 3.4-1**) and a plotless sampling technique (Mueller-Dombois and Ellenberg, 1974) were used to objectively describe plant species composition and relative abundance in homogeneous vegetation cover types. General habitat conditions and the presence and character of special habitat features were also noted. Scientific nomenclature of all plant species identified follows that of Hitchcock and Cronquist (1976), as updated by Pojar and MacKinnon (1994), Hickman (1993), and Cooke (1997).

The classification of plant communities was based on both national and local systems. Wetland habitats were classified according to the U.S. Department of Interior Fish and Wildlife Service (USFWS) system reported by Cowardin et al. (1992). Upland communities were classified based primarily on the system used by Anderson et al. (1976). The wetlands investigation followed the U.S. Army Corps of Engineers (COE) Wetlands Delineation Manual (Environmental Laboratory 1987), as required by state law.

Table 3.4-1
KEY TO BRAUN-BLANQUET COVER-ABUNDANCE SCALE

Braun- Blanquet Code	Definition	Cover Class Range (%)	Cover Class Mid-Point (%)
5	Any number, with cover more than 3/4 of the reference area	75-100	87.5
4	Any number, with cover between 1/2 and 3/4 of the reference area	50-75	62.5
3	Any number, with cover between 1/4 and 1/2 of the reference area	25-50	37.5
2	Any number, with cover between 1/20 and 1/4 of the reference area	5-25	15.0
1	Numerous, but less than 1/20 cover, or scattered, with cover up to 1/20	< 5	2.5
+	Few, with little cover	< 5	2.5
r	Solitary, with little cover	< 5	2.5

Biologists collected and analyzed background information available for the site prior to the on-site investigation. This included maps and information from the U.S. Fish and Wildlife Service National Wetland Inventory (USFWS NWI 1987a, 1987b, 1987c), U.S.D.A. Soil Conservation Service (SCS) Soil Survey (Poulsen et al. 1952); the Washington Department of Natural Resources (WDNR 2002a, 2002b) Forest Practices Base Map; and aerial photography (WDNR Series NW-C-2001) to assist in defining existing plant communities, drainage patterns, and land use.

Animal use of the site was investigated through direct field observations, and through compilation of information about the project site provided by local agencies and published sources. Information about the site was also extrapolated from the consultants¹ research and management experience in the Puget Sound lowlands.

Thus, field observations were augmented by information was consulted on species-habitat preferences in order to evaluate the likelihood of the occurrence of additional wildlife species. A general wildlife-habitat table for habitat types found on the Greenbridge site was developed (1987; **Table 3.4-2**). Additional information for wildlife-habitat relationships (Johnson and O'Neil 2001) and for specific animal groups, including Hunn (1982), Penland (1984), Smith et al. (1997), and Wahl and Paulson (1994) for birds, Guenther and Kucera (1978) and Johnson and Cassidy (1997) for mammals, and Brown et al. (1995), Dvornich et al. (1997), Guenther and Kucera (1978), Leonard et al. (1993), and Nussbaum et al. (1983) for reptiles and amphibians.

Table 3.4-2

PLANT SPECIES AND COMPOSITION OF REPRESENTATIVE HABITATS

	Cover Type ¹ Site ²	Fc WP	Fm WP	Fm WCP	Fm SHP	Fm LWP	Fd PLH	Fm NSP	PFO WCH	PSS WCP
Scientific Name	Common Name									
TREES										
<i>Acer macrophyllum</i>	Big-leaf maple				2					
<i>Alnus rubra</i>	Red alder			2	4	2	4	3	2	
<i>Arbutus menziesii</i>	Pacific madrone	+	4	3	2	4	+	4		
<i>Populus balsamifera</i>	Black cottonwood						3			
<i>Prunus emarginata</i>	Bittercherry						2	2		
<i>Pseudotsuga menziesii</i>	Douglas-fir	5	2	4	2	1				
<i>Salix lucida</i>	Pacific willow					+			4	
<i>Thuja plicata</i>	Western red cedar	+		1	2	1	+			
<i>Tsuga heterophylla</i>	Western hemlock	+			1					
SHRUBS										
<i>Cornus sericea</i>	Red-osier dogwood									2
<i>Corylus cornuta</i> (s)	Hazelnut	1	1	3	4			3	2	
<i>Crataegus</i> spp.	Hawthorn					+		2		
<i>Gaultheria shallon</i>	Salal	5	5	5		2		4		
<i>Holodiscus discolor</i>	Common snowberry					1				
<i>Ilex aquifolium</i>	English holly	1					1			
<i>Mahonia nervosa</i>	Cascade Oregon grape				3			2		
<i>Oemleria cerasiformis</i>	Indian plum						2			
<i>Prunus laurocerasus</i>	Laurel cherry				1		1			
<i>Ribes</i> spp.	Currant			1						
<i>Rosa</i> spp.	Rose					+			2	
<i>Rubus discolor</i>	Himalayan blackberry		3		4		5		5	3
<i>Rubus ursinus</i>	Pacific blackberry	1								
<i>Salix lucida</i> (s)	Pacific willow									4
<i>Sambucus racemosa</i>	Red elderberry	2		1			+			
<i>Spiraea douglasii</i>	Hardhack spirea					1				
<i>Thuja plicata</i> (s)	Western red cedar					1				
HERBS										
<i>Carex obnupta</i>	Slough sedge								2	
<i>Claytonia sibirica</i>	Siberian miner's- lettuce					+				
<i>Clematis</i> spp.	Clematis						2			
<i>Galium</i> spp.	Bedstraw					+				
<i>Gramineae</i> spp.	Grasses	+				1	2			2
<i>Hedera helix</i>	English ivy	1			3					

	Cover Type ¹ Site ²	Fc WP	Fm WP	Fm WCP	Fm SHP	Fm LWP	Fd PLH	Fm NSP	PFO WCH	PSS WCP
Scientific Name	Common Name									
<i>Phalaris arundinacea</i>	Reed canarygrass									5
<i>Polystichum munitum</i>	Sword-fern	2		2	3	5	+			2
<i>Pteridium aquilinum</i>	Bracken-fern					1				1

Notes:

1. Cover types:

Fc = Forested, coniferous
Fm = Forested, mixed
Fd = Forest land, deciduous

PFO = Palustrine, forested wetland
PSS = Palustrine, scrub-shrub wetland

2. Sites:

WP = Westcrest Park
LWP = Lakewood park
WCH = White Center Heights Park
PLH = Park Lake Homes

SHP = Seahurst Park
NSP = North Shorewood Park
WCP = White Center Park

During field investigations, animal sign was documented while describing plant communities and habitats. Biologists recorded information regarding habitat use and activities of wildlife species observed. Such information included concentrations of animals and special habitat features such as large trees, snags (standing dead or partially dead trees), or large downed logs.

The Washington Natural Heritage Program was contacted in September 2002 for any documented information on the likelihood of occurrence of endangered, threatened, or sensitive plant species on the project area or vicinity (see Section VII of this Draft EIS for agency correspondence). Species accounts and descriptions of the Washington Natural Heritage Program (1997), Hitchcock and Cronquist (1976), and Pojar and MacKinnon (1994) were consulted for information on plant species of special concern (i.e., threatened, endangered, or sensitive) that might be found in the project area (**Table 3.4-3**). During field surveys, biologists searched for the presence of any of these species suspected to occur on the project area or vicinity.

Information from WDFW PHS/HRTG database (2001, 2003; see Section VII of this Draft EIS) was used to document information on the likelihood of occurrence of Priority Species and Habitats (PHS) on the project area and vicinity. In addition, lists maintained by the USFWS (2002a, 2002b) and the WDFW (2002; also Rodrick and Milner 1991) were consulted for information on the occurrence and habitat relationships of wildlife species of special concern that might use the site during at least some part of the year. Species accounts (including citations above) and management recommendations (e.g., Rodrick and Milner 1991, Hayes and Buchanan 2002) were consulted to determine habitat preferences of such species and to evaluate the likelihood of their occurrences on the project area. During our field investigations, we then searched for the presence of these species, or signs thereof, that may be likely to occur on the site.

Table 3.4-3
ENDANGERED, THREATENED AND SENSITIVE VASCULAR PLANTS

Scientific Name	Common Name	Status		WIS
		State	Federal	
<i>Aster curtus</i>	White-top aster	S	SC	UPL
<i>Carex buxbaumii</i>	Buxbaum's sedge	S	-	OBL
<i>Carex comosa</i>	Bristly sedge	S	-	OBL
<i>Castilleja levisecta</i>	Golden paintbrush	E	T	UPL*
<i>Cimicifuga elata</i>	Tall bugbane	T	SC	UPL*
<i>Cyperus bipartitus</i> (<i>rivularis</i>)	Shining flatsedge	S	-	OBL
<i>Hypericum majus</i>	Canadian St. John's-Wort	S	-	FACW
<i>Lycopodium dendroideum</i>	Treelike clubmoss	S	-	FACU
<i>Platanthera obtusata</i>	Small northern bog-orchid	S	-	FACW
<i>Utricularia intermedia</i>	Flat-leaved bladderwort	S	-	OBL

(Source: <http://www.wa.gov/dnr/htdocs/fr/nhp/refdesk/fguide/htm/fsfgcnty.htm>).

Status Codes:

State: E = Endangered
T = Threatened
S = Sensitive

Federal (USFWS): SC = Species of Concern
T = Threatened

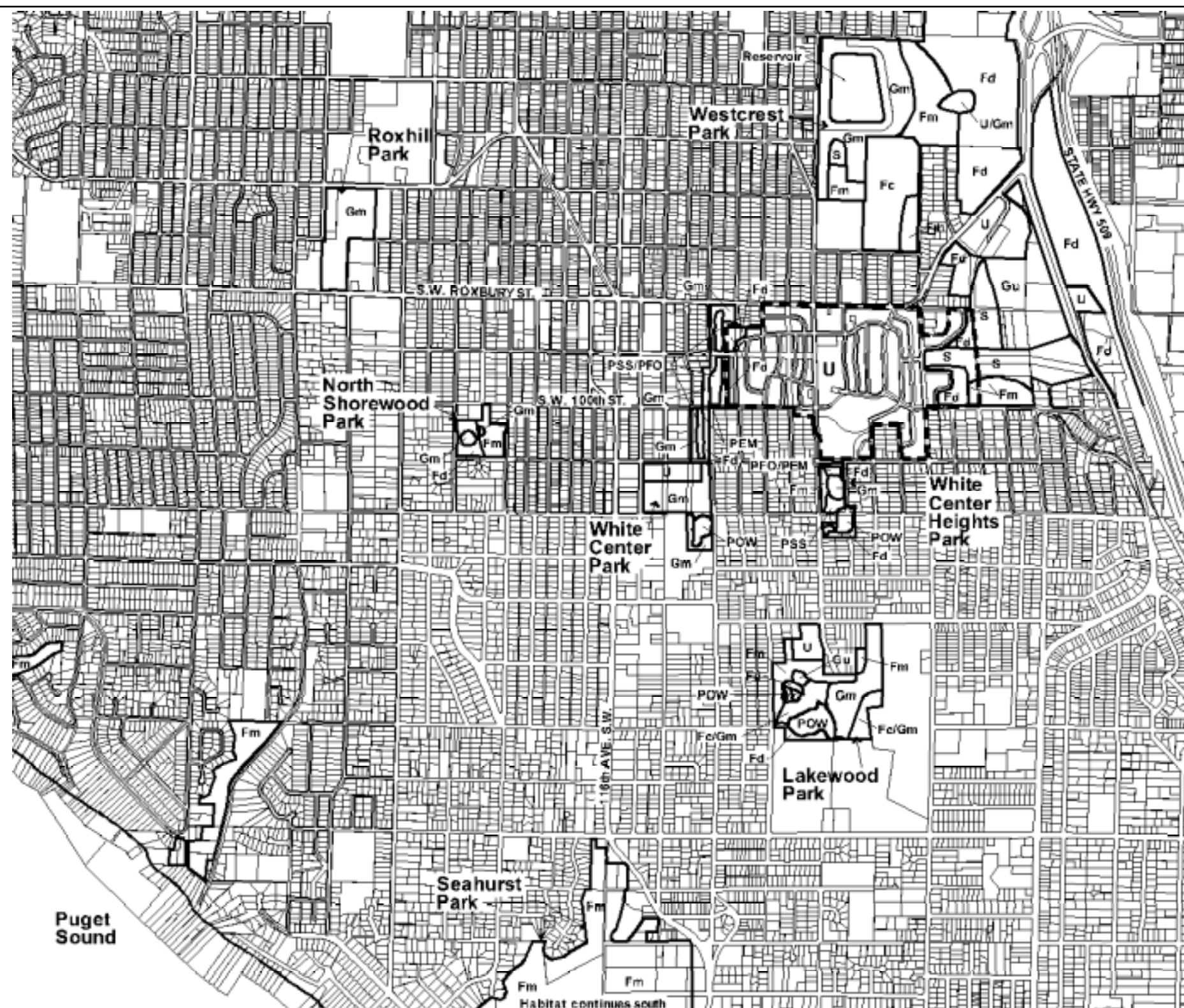
Wetland Indicator Status (WIS) Ratings (Reed 1988, 1993):

OBL = Obligate Wetland
FACW = Facultative wetland
FAC = Facultative

FACU = Facultative upland
UPL = Upland
UPL* = Plant species not mentioned on the WIS list were rated upland by default.

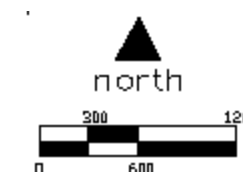
3.4.1 Affected Environment

Several parks and open space habitats lie within the vicinity of the project site (**Figure 3.4-1**). The off-site wetland known as Salmon Creek 1 wetland (King County 1991) (and known locally as the "White Center Bog") and buffer are adjacent to the west property boundary; this open space area appears to be a northern extension of the White Center Park. The wetland continues south to 102nd Street where it meets the White Center Park proper. White Center Heights Park and Lakewood Park are located two blocks and eight blocks south of the project site, respectively (Figure 3.4-1). North Shorewood and Roxhill Parks are located 10 blocks west and 15 blocks northwest of the project site. Westcrest Park is located several blocks



LEGEND

- Project site
- Fm - mixed forest
- Fd - deciduous forest
- Fc - coniferous forest
- Gu - unmowed grass
- Gm - mowed grass
- PEM - palustrine emergent
- POW - palustrine open water
- PSS - palustrine shrub/shrub
- PFO - palustrine forested
- S - shrub
- U - urban



Source: Raedeke Associates, Inc.

north of the project site and includes a City of Seattle reservoir. Open space and riparian habitats include Seahurst-Inglesea ravine (which is north of Seahurst Park), Southern heights and Arbor Heights located approximately 1.5 miles south, southwest and east of the project area, respectively (Figure 3.4-1).

The eastern portion of the project site slopes gently toward 4th Avenue SW. East of 4th Avenue SW, the terrain slopes more steeply and forms a small east-west running ravine that slopes east off-site. The north portion of the east boundary terminates at steep slopes that drop sharply into an old quarry in the Duwamish River Valley, while the south portion contains more rolling slopes before sloping steeply off-site. The southeast portion of the site is not developed. A narrow strip of the western edge of the property slopes to the west and is contiguous with the forested buffer of the Salmon Creek 1 wetland (Figure 3.4-1; see also Appendix B of this Draft EIS). Stormwater runoff routed from the west portion of the site outlets to this slope and into the adjoining wetland buffer. Stairs and a segment of the paved pedestrian trail bisect the wetland and enter the west side of the property. This trail continues south toward White Center Park proper.

The majority of the project site is developed and consists of residential housing, a community center, a Head Start school, and a food bank, interspersed with mowed grasses and planted trees of various sizes. The property has been developed since 1942, and many of the structures have been renovated. Wooded and shrub areas include a narrow strip at the west portion of the site and the steep slopes at the eastern portion of the property, east of 4th Avenue.

Vegetation

Three distinct cover types, Urban (U), deciduous forest (Fd), and lowland shrub (S) (Figure 3.4-1) were identified within the property. Most of the vegetation community on the project site is consistent with urbanized residential areas and includes shared green spaces in the form of lawns, as well as scattered deciduous and coniferous trees. The forested slope along the western margin of the project site above the wetland consists primarily of deciduous forest with patchy and scattered native and non-native conifers. Scattered large Pacific madrones, and many black cottonwoods and alders occur on this slope and extend down through the wetland buffer off-site.

Several of the parks and open spaces in the vicinity of the project site are identified as Priority Habitats (WDFW 2001, 2003) and are discussed in the Priority Habitat section. The majority of the parks have some component of mowed grass that is used as picnic spots, ball fields, and off-leash dog areas. Other portions of the parks are comprised of open water habitats, including a municipal reservoir and ponds, and shrub-scrub and forested wetland habitats. Upland mixed, coniferous, and deciduous forests and scrubland are components of several of the parks and the open spaces. The distribution of the cover types on the parks and green spaces are is shown in Figure 3.4-1.

Upland Habitats

Urban, moderately vegetated (U):

This habitat type includes areas in which vegetation comprises between 30 and 70 percent of the total ground area (King County 1987). Mowed grass lawns occur throughout the site between rows of housing, sidewalks and streets (Figure 3.4-1). According to site visits and a tree survey prepared by Bush, Roed & Hitchings, Inc. (2002) for the developed portion of the project site, several species of trees grow within the lawn areas. Douglas-firs and red and Scotch pines are the dominant conifers, with a variety of ornamental deciduous trees including poplars, elms, chestnuts, cherries, and locust trees scattered throughout the developed portion of the site.

Grass/Forb, mowed (Gm):

Extensive off-site mowed grassy areas consistent with this cover type include the ball fields at White Center and Roxhill Parks. Mowed lawns are interspersed with other habitats at the Lakewood Park and White Center Heights Park, and an off-leash dog run in Westcrest Park (Figure 3.4-1).

Deciduous Forest (Fd):

In general, the deciduous forest along the east and west boundaries are dominated by red alder and black cottonwood, with scattered bittercherry trees (Table 3.4-2, Figure 3.4-1). Pacific Madrone and Douglas-fir trees are scattered along the ridge. A small conifer stand of Douglas-fir and ornamental deodar cedar is situated on the slope on the southwest portion of the property. Clematis vines are common in many of the trees, particularly on the northwest slope. The dense understory consists primarily of Himalayan blackberry, with moderate amounts of Indian plum, and scattered English laurel and English holly. Shrub cover is dense on the slopes, particularly near openings such as along the paved pathway to the stairs on the west property boundary.

This cover type was observed off-site at the north end of the White Center Heights Park buffering the forested wetland, and on the southern end of Lakewood Park, fringing the pond (Figure 3.4-1).

Coniferous Forest (Fc):

Coniferous forest in the Westcrest Park is dominated by Douglas-fir with scattered Pacific madrone, western red cedar and western hemlock (Table 3.4-2, Figure 3.4-1). Dense salal is the main understory shrub. Off-site stands, including a narrow patch between the two wetlands at White Center Park, are comprised of Douglas-fir and red alder in the canopy and salmonberry and Himalayan blackberry in the understory (Figure 3.4-1).

Lowland Shrub (S)

A shrub community dominated by Scot's broom, Himalayan blackberry and grasses occurs on the east boundary of the property on steep slopes (Table 3.4-2, Figure 3.4-1). This community continues off-site. A second variant of a lowland shrub community, dominated by dense berms of Himalayan blackberry and red alder saplings, exists in other locations in small patches, such as on the west boundary of North Shorewood Park.

Mixed Forest (Fm):

Mixed forest habitats were observed in Westcrest, Seahurst, Lakewood, and North Shorewood Parks, and occur as several distinct types: (1) coniferous and broad-leaved evergreen, (2) coniferous and broad-leaved deciduous, and (3) broad-leaved evergreen and broad-leaved deciduous. Mixed stands in Westcrest Park are of the first type, dominated by Douglas-fir and Pacific Madrone, with scattered red alder and western red cedar. Some stands there are dominated by madrone, with a lesser amount of Douglas fir. Understory components include a dense groundcover of salal and taller beaked hazelnut and red elderberry (Table 3.4-2, Figure 3.4-1). The second type was characteristic of the wooded ravines north of Seahurst Park, where stands were dominated by red alder, big-leaf maple, western red cedar, Douglas-fir, and madrone. Dominant understory shrubs consist of beaked hazelnut, tall Oregon grape and Himalayan blackberry. The third type was found at North Shorewood Park and consists primarily of stands dominated by Pacific Madrone, with smaller stature red alder and bittercherry trees as sub-dominants. The dense understory consists of salal, hawthorne, beaked hazelnut and tall Oregon grape (Table 3.4-2, Figure 3.4-1). Similar habitat occurs in Lakewood Park, with additional species including Douglas-fir and western red cedar trees in the canopy. A less dense shrub layer includes scattered oceanspray, spirea, and rose.

Wetlands

In 2001, DDES staff preliminarily identified a Class 3 wetland and Class 3 stream within a ravine located in the southeastern corner of the Park Lake Homes site. The wetland and stream are not identified in the King County Sensitive Areas Map Folio (1990) or in the King County Wetlands Inventory (1991). Based on the U.W. Fish and Wildlife Service wetland classification system (Cowardin et al, 1992), the on-site wetland consists of a Palustrine, scrub-shrub, broad-leaved, deciduous (PSS1) cover class according to descriptions provided by King County DDES (2003).

The nearest wetland identified in the King County Wetland Inventory (1991) is an off-site wetland located approximately 100 feet west of the Park Lake Homes site, at the base of a west-facing slope, which ranges in width from 100 to 200 feet and 20 to 40 percent. Known as the White Center Pond and in the King County Wetland Inventory (1991) as Salmon Creek 1 wetland (White Center Neighborhood Pond or White Center Bog), King County has designated this wetland as a Class 2 wetland. An on-site investigation confirmed this designation because it contains three or more classes of vegetation and is larger than one acre in size (see Appendix B). The Salmon Creek 1 wetland consists of a variety of cover classifications, including: Palustrine, forested, broad-leaved, deciduous (PFO1), Palustrine, scrub-shrub, broad-leaved deciduous (PSS1), and Palustrine, emergent, persistent (PEM1).

Two regulatory considerations apply to the on-site and off-site wetlands.

- Federal law generally prohibits the discharge of dredged or fill materials into the nation's waters (including most streams and non-isolated wetlands) without a permit from the U.S. Army Corps of Engineers (COE). Based on the presently mapped sizes and the classifications by King County, it is assumed that the on-site wetland and the Salmon Creek 1 wetland are likely to be considered jurisdictional by the COE; however, the COE will make the final determination as to whether it meets the federal definition of wetland (Federal Register 1986:41251).
- King County regulates wetlands as sensitive areas. Class 3 wetlands normally require a 25-foot buffer, plus a building setback (typically 15 feet). Class 2 wetlands (Salmon Creek 1 wetland) normally require a 50-foot buffer, plus a building setback. However, for wetlands that are within 25 feet of the toe of a 30 to 40 percent slope, King County requires an additional 25-foot setback beyond the standard wetland buffer. This requirement applies if the horizontal length of the slope extends beyond the standard wetland buffer width. The anticipated wetland buffer for the on-site wetland could vary between 25 and 50 feet or greater, depending on the steepness of the slope. The boundaries of the Class 3 wetland have not been delineated, and it is not certain if the required buffer would fall within the buffer of the adjacent steep slope. The proposal includes modifications to the steep slope buffer. The wetland buffer for the Salmon Creek 1 wetland may vary between 50 and 75 feet.

Palustrine, Forested Wetland (PFO):

Forested wetland habitats were observed primarily in the White Center Heights, White Center (Salmon Creek 1 wetland), and Lakewood Parks (Table 3.4-2, Figure 3.4-1). Dominant canopy species include Pacific willow and red alder trees. Red-osier dogwood, a rose species, and Himalayan blackberry canes are dominant shrub components. Small, open depressions dominated by slough sedge were observed within the forested wetland cover in the White Center Heights Park. Small patches of forested wetland occur at the Lakewood Park along the drainage that runs north/south through the park.

Palustrine, Scrub-shrub Wetland (PSS):

The Salmon Creek 1 wetland north of White Center Park proper (Figure 3.4-1) supports a scrub-shrub community dominated by Pacific willow, red-osier dogwood, and Himalayan blackberry, with areas dominated by reed-canary grass along the west margins. Scattered patches of Douglas spirea and Japanese knotweed were also observed.

Palustrine, Emergent Wetland (PEM):

Emergent wetland cover occurred mainly as smaller patches within other cover types, such as the area of reed canarygrass observed in the Salmon Creek 1 wetland and areas south toward White Center Park proper. Small patches of emergent cover dominated by slough sedge were found within the wetland at the north end of White Center Heights Park (Figure 3.4-1).

Palustrine Open Water wetland (POW)

Open water ponds were observed in the White Center Heights and Lakewood Parks and south of White Center Park proper. During winter field visits, these ponds did not support vegetation; however, floating vegetation was apparent on summer aerial photos, with extensive cover on the pond within White Center Heights Park. A large municipal reservoir is located in Westcrest Park.

Special Habitat Features

Special habitat features include biologic elements such as edges between plant communities or successional stages, cliffs, snags, and coarse woody debris, which are often important to wildlife (Brown 1985, Thomas and Verner 1986). The most distinct edges on the project site are the edges between the developed portions and the forested habitats along the west and east boundaries. Edge habitat also occurs between the shrub and forested communities on the east boundary. Edge habitats are also found in the various parks in the vicinity, most commonly between mowed lawns and native forest or shrub habitats, both wetland and upland.

Snags (dead or partly dead trees at least 4 inches diameter at breast height [dbh] and 6 feet tall) are important to many wildlife species for nesting, feeding, and roosting (Cross 1986, Neitro et al. 1985, Scott et al. 1977 in Ohmart and Anderson 1986). Few scattered red alder snags were observed within the Salmon Creek 1 wetland, and one snag was observed in the forest along the southwest boundary from the pedestrian path. One downy woodpecker was observed foraging in a snag in the wetland.

Coarse woody debris includes downed logs and major limbs of trees lying on the ground. Downed logs provide many habitat features, including perch sites, food, nest cavities, and cover for many species, such as some amphibians (Jones 1986). Few, small, scattered downed branches were observed in the forested stands of the Salmon Creek 1 wetland buffer toward the project site. Downed trees with exposed rootwads were observed in the northern portion of the wetland. The native forest cover in the various parks in the area generally had limited downed woody debris, except within the steep, wooded ravines north of Seahurst Park.

Endangered, Threatened, and Sensitive Species

There are no federal or state threatened, endangered or sensitive plant species known to exist on the project site (Washington Department of Natural Resources 2002; Washington Department of Fish and Wildlife (WDFW 2001, 2003) nor were any identified during our field surveys.

The current list of endangered, threatened, and sensitive plants of Washington thought to occur in King County is given in Appendix A, Table 3.4-3. Based on habitat descriptions for these species in Hitchcock and Cronquist (1976), Pojar and MacKinnon (1994), and field surveys, adequate conditions do not exist on the project site or nearby open space habitats to support these species, and thus they are not likely to be present. None of these species was observed during field investigations.

Wildlife

The developed portion of the project site provides habitat species adapted to urbanized habitats. The undeveloped forested portions along the east and west boundaries provide habitat for a wider variety of species, particularly because they are adjacent to other undeveloped native open space. More significant wildlife habitat can be found in the surrounding parks and open spaces in the vicinity of the project area, as described above. Within a mile of the project site, these include the Salmon Creek 1 wetland and associated upland forest adjacent to the west property boundary, North Shorewood Park to the west, White Center Heights and Lakewood Parks to the south, the wooded ravines north of Seahurst Park to the southwest, Westcrest Park to the north, and much of the forested habitat on the steep slopes along the western border of the Duwamish River Valley.

These open space areas provide habitat for resident wildlife, including birds, mammals, reptiles, and amphibians, and also may act as “stepping stones” or corridors for migrating birds. Based on King County (1987), a variety of species could occur in any of the habitats encountered (**Table 3.4-4**); the actual number of species found in these habitats in the project vicinity is limited to some degree, however, by the highly urbanized surroundings. Because the field investigation was conducted outside the breeding season in January, and because of the secretive habits of many species, only a portion of the species expected to use the on-site and off-site habitats were actually observed or detected (**Table 3.4-5**).

Table 3.4-4
WILDLIFE SPECIES AND HABITAT

Habitat	Habitat Code ¹	Cover Type Code ²	Number of Species			
			Amphibians and Reptiles	Birds	Mammals	Total
Shrub wetland	11	PSS	4	8	3	22
Freshwater marsh	12	PEM	12	26	4	45
Forested wetland	15	PFO	6	36	7	49
Lowland Grass/forb	19a	Gm	11	59	21	91
Lowland Shrub*	21a	S	11	33	21	65
Coniferous forest	24a	Fc	14	45	24	84
Deciduous forest	24b	Fd	14	56	24	94
Mixed forest*	24c	Fm	14	47	22	83
Urban, moderately vegetated*	30b	U	2	37	11	50

Notes:

¹ Habitat land use codes listed are from the King County (1987) Wildlife Habitat Profile

² Cover type codes are based on Cowardin et al. (1992) for wetlands and Anderson et al. (1976) for uplands

* Habitats on the Park Lake Home property

Table 3.4-5
WILDLIFE SPECIES

Scientific Name	Common Name	Sign ¹
REPTILES		
<i>Clemmys marmorata</i> ²	Western pond turtle	-----
<i>Thamnophis</i> spp. ²	Garter snake species	-----
AMPHIBIANS		
<i>Hyla regilla</i>	Pacific treefrog	A
<i>Ambystoma gracile</i> ²	Northwestern salamander	-----
<i>Ambystoma macrodactylum</i> ²	Long-toed salamander	-----
<i>Plethodon vehiculum</i> ²	Western redback salamander	-----
<i>Ensatina escholtzii</i> ²	Ensatina	-----
BIRDS		
<i>Anas platyrhynchos</i>	Mallard	V
<i>Anas clypeata</i>	Northern Shoveler	V
<i>Anas americanus</i>	American wigeon	V
<i>Aythya collaris</i>	Ring-necked duck	V
<i>Bucephala albeola</i>	Bufflehead	V
<i>Lophodytes cucullatus</i>	Hooded Merganser	V
<i>Fulica americana</i>	American coot	V
<i>Larus glaucescens</i> *	Glaucous-winged gull	A/V
<i>Haliaeetus leucocephalus</i> ²	Bald eagle	-----
<i>Accipiter striatus</i> ²	Sharp-shinned hawk	-----
<i>Accipiter cooperii</i> ²	Cooper's hawk	-----
<i>Pandion haliaetus</i> ²	Osprey	-----
<i>Falco sparverius</i> *	Merlin	V
<i>Buteo jamaicensis</i>	Red-tailed hawk	V
<i>Columba livia</i> *	Rock dove	A/V
<i>Strix varia</i> ²	Barred owl	-----
<i>Otus kennicottii</i> ²	Western screech-owl	-----
<i>Glaucidium gnoma</i> ²	Northern pygmy-owl	-----
<i>Aegolius acadicus</i> ²	Northern saw-whet owl	-----
<i>Chaetura vauxi</i> ²	Vaux's swift	-----
<i>Calypte anna</i>	Anna's hummingbird	A
<i>Colaptes auratus</i>	Northern flicker	V
<i>Picoides pubescens</i>	Downy woodpecker	V
<i>Empidonax</i> spp. ²	Flycatcher spp.	-----
<i>Hirundo</i> spp. ²	Swallow spp.	-----
<i>Corvus brachyrhynchos</i> *	American crow	A/V
<i>Cyanocitta stelleri</i>	Steller's jay	A/V
<i>Parus atricapillus</i>	Black-capped chickadee	A/V
<i>Parus rufescens</i>	Chestnut-backed chickadee	A/V
<i>Psaltirparus minimus</i>	Bushtit	A/V
<i>Certhia americana</i> ²	Brown creeper	-----
<i>Sitta canadensis</i>	Red-breasted nuthatch	A/V
<i>Troglodytes troglodytes</i>	Winter wren	A/V
<i>Thyromanes bewickii</i>	Bewick's wren	A
<i>Turdus migratorius</i> *	American robin	A
<i>Regulus satrapa</i>	Golden-crowned kinglet	A
<i>Regulus calendula</i>	Ruby-crowned kinglet	A

Scientific Name	Common Name	Sign ¹
<i>Sturnus vulgaris</i>	European starling	A/V
<i>Vireo huttoni</i>	Hutton's vireo	A/V
<i>Agelaius phoeniceus</i>	Red-winged blackbird	A/V
<i>Pipilo macolatus</i>	Spotted towhee	A
<i>Passerculus sandwichensis</i>	Song sparrow	A/V
<i>Junco hyemalis</i>	Dark-eyed junco	A/V
<i>Passerella iliaca</i>	Fox sparrow	V
<i>Dendroica coronata</i>	Yellow-rumped warbler	A/V
<i>Passer domesticus</i> *	House sparrow	A/V
<i>Cardulis pinus</i>	Pine siskin	A/V
<i>Carduelis tristis</i>	American goldfinch	AV
<i>Carpodacus mexicanus</i>	House finch	A/V
<i>Haliaeetus leucocephalus</i> ²	Bald eagle	----
MAMMALS		
<i>Squirrel carolinensis</i> *	Eastern gray squirrel	V
<i>Tamiasciurus douglasii</i>	Douglas' squirrel	A
<i>Scapanus spp.</i> ²	Mole	---
<i>Rattus norvegicus</i> ²	Norway rat	---
<i>Procyon lotor</i> ²	Raccoon	---
<i>Bombycilla cedrorum</i> ²	Opossum	---
<i>Sorex spp.</i> ²	Shrew	---
<i>Microtus spp.</i> ²	Vole	---
<i>Mustela spp.</i> ²	Weasel	---

Notes:

* Species observed on the project site

1. A= auditory V= visual

2. Species mentioned in text but not observed during surveys

Reptiles and Amphibians

Most amphibians and reptiles are secretive and seldom observed, except during short periods in their life cycles, and thus require special techniques to inventory adequately. No amphibians were observed on-site, although a Pacific treefrog was heard calling in the Salmon Creek 1 wetland adjacent to the west property boundary. Reptiles and amphibians are likely to use the developed portion of the project site only incidentally to the proximate open spaces, if at all.

The project site provides little habitat for amphibians. Many amphibians rely on wetlands and streams for breeding habitats, such as the communities in the adjacent wetland. Some salamander species and frogs breed or spend significant time in logs and duff in the forest, and are active feeders in the forest during moist periods. A portion of Salmon Creek 1 wetland off-site may retain water for a sufficient period to support water-dependent egg deposition, in which case treefrogs may use the forested southwest portion of the property. Other amphibians that could potentially use this forested area include northwestern and long-toed salamander. Species that lay their eggs in the forest duff such as the ensantina and western red-backed salamander might also be found using the forested portions on-site. Amphibian populations are likely limited, however, by the lack of connective habitat and high vehicular traffic between the open spaces. Among reptiles, garter snakes may occur on the project site, primarily using the wooded areas along the western and eastern borders of the site for cover and on-site areas for basking. A pond turtle was collected in Lakewood Park in 1988, but this species is not likely

found there currently (see section below under Endangered, Threatened, Sensitive, and Other Priority Species and Habitats).

Birds

Raedeke Associates, Inc. staff observed thirty-six bird species during field visits at the project site and the off-site parks and open spaces noted above. Only five species were observed in the developed portion of the site; however, additional species could be expected to occur in the forested portions of the property during different times of year. The birds observed in the developed portion of the property were typical urban species and included American crow, glaucous-winged gull, Rock dove (pigeon), American robin, and house sparrow (Table 3.4-5). Robins foraged in the lawn areas. Crows, pigeons, and gulls perched on the houses and particularly the food bank, in large numbers. King County (1987) lists as many as 50 species that could inhabit urban habitats.

The project site has no aquatic habitat, which precludes most shorebird, waterfowl, and wading birds from using the property, except those that could feed on mowed lawns or incidental occurrence flying over the site. Mallard ducks and one northern shoveler were found foraging in inundated emergent portions of the Salmon Creek 1 wetland (Table 3.4-5). All of the other waterfowl including an American coot, bufflehead, hooded merganser and American widgeon were observed on the open water ponds of the nearby parks, including Lakewood, White Center Heights, and the pond south of White Center Park (Figure 3.4-1; Table 3.4-5).

The forested areas of the site are small; however, because they are contiguous with other forested habitats, small owls like the western screech, pygmy, and saw-whet could use the forested portions of the property for roosting and hunting. Barred owls are large owls that are typical of a variety of forest habitats, have greatly expanded their range in the northwestern U.S. in recent years, and often use woodlots in urban areas. Barred owls could use the forested portions of the property or larger patches of forest associated with Westcrest Park to the northeast (including wooded slopes bordering the Duwamish valley) or the Seahurst/Shorewood area to the southwest, as part of a territory. No owls, or evidence thereof, were detected on-site. One species of small falcon, a merlin, was observed eating a house sparrow in the woodland on the west side of the property. Merlins typically prey on birds and occur during the winter season in the Puget Sound Lowlands. One adult red-tailed hawk was seen off-site in the powerline corridor east of the property. Sharp-shinned hawks and Cooper's hawks are small hawks (accipiters) that prey mainly on small birds in forest or shrub habitats, and may be seen in urban areas. Their nests are typically in forests with dense canopies near more open areas where prey is hunted; however, these birds were not detected on the project site. Several large stick nests observed in alder trees along the north portion of the west boundary are likely nests built by American crows. Accipiters sometimes nest in old crow nests.

Woodpeckers glean insects and larvae from on or under the bark of trees and snags. All are forest primary cavity-nesting species that excavate their own nests (primary cavity-nesters). Northern flickers, Washington's most common woodpecker, and a smaller downy woodpecker, were observed in the wetland west of the site. These species are relatively common around urbanized areas and often feed at suet feeders at single-family homes. Habitat for these species in the vicinity is limited by the relative lack of snags and downed logs in the forested areas, and by the limited area of forest habitats near the project site.

Passerines, or perching birds, contain the largest number of families and have the most diverse range of bird species of any order. Passerines are generally small birds that exhibit a wide range of feeding modes. Insectivorous passerines include aerial feeders (e.g. swifts, swallows, and flycatchers) and gleaners of insects from trees and shrubs (e.g. warblers, vireos, chickadees, and kinglets). Small mixed flocks of black-capped and chestnut-backed chickadees, red-breasted nuthatches, golden-crowned kinglets, and brown creepers were observed in many of the off-site parks and forested open spaces, including the forested habitat along the western site boundary. Chickadees and nuthatches also come to bird feeders and are often seen in urban habitats where some patches of native forest remain. These species likely forage in the trees even in the developed portion of the site. One warbler species, a yellow-rumped warbler, was observed in the Salmon Creek 1 wetland. Ground foragers, including song sparrows, winter wrens, and spotted towhees were observed in the dense Himalayan blackberry shrubs in the west portion of the site. Steller's jays were observed in the forested portions of the site. Jays, song sparrows, and spotted towhees also commonly use bird feeders and live in urban areas where woodlots exist. The trees on the property are likely used by many species of passerines throughout the year as perching and foraging habitat.

Mammals

The introduced eastern grey squirrel was observed on the developed portion of the project site. Moles likely live in some of the lawn areas. Introduced Norway rats are a common mammal adapted to live in urban areas.

The off-site forested and wetland habitats likely support a variety of mammals. They are less frequently observed than birds because of their often secretive and nocturnal habits. King County lists as many as 24 mammals (Table 3.4-4) that may inhabit any one of the types of habitats in the vicinity, although many species may not actually be present at the sites. Of these, only one species, the eastern gray squirrel, was observed off-site. Raccoon and opossum are also likely to use both the developed and undeveloped portions of the site as well as the adjacent open spaces.

The forest floor has relatively dense low ground cover and scattered coarse woody debris that likely provides some habitat for small mammals such as shrews, voles, mice, and rats. Shrews and voles are generally insectivores, and are important food source for predatory birds. These species are likely more limited in areas surrounded by urban habitats due to the presence of domestic dogs and cats, which can be highly effective predators on native species (Penland 1984).

Bat distribution and abundance in western Washington are relatively poorly known and require specialized techniques to inventory. Some species of bats could be found in the forest habitats and green spaces, feeding in open areas and wetlands. Most species are migratory and return to this region in the spring when insect populations are abundant. Bats are aerial foragers that feed on insects in the twilight periods and at night. Our survey was conducted during the day, and thus was not an appropriate time to determine bat presence. It is unlikely that bats inhabit the project site to any significant degree.

No carnivores or their sign (footprints, scat) were observed; although as previously mentioned, raccoons are likely present. Because the area is highly urbanized, it is unlikely that the small, fragmented green spaces provide much habitat for larger predators like coyotes or bobcats. Weasels could be present in the wetland habitats in the nearby parks. Domestic cats and dogs

can be significant predators on species restricted to habitat islands in urban settings and are likely to hunt on the project site and contiguous habitats. Two cats were observed in the developed area near the forested buffers on the west boundary.

Deer are herbivores that browse mainly on shrubs and trees in forests and shrublands. The highly developed nature of the project area makes it unlikely that deer would be present on-site.

Endangered, Threatened, Sensitive, and Other Priority Species and Habitats

Maps and tabular data received from the WDFW (2001, 2003; Seattle South, Duwamish Head and Des Moines quadrangles) listing known occurrences of endangered, threatened, sensitive and other Priority species and habitats from their Priority Habitats and Species (PHS) and Natural Heritage Wildlife (HRTG) database (see Section VII of this Draft EIS). State priority species are defined as those fish and wildlife species “requiring protective measures and/or management guidelines to ensure their perpetuation” (WDFW 1999). State priority habitats are defined as “a habitat type with unique or significant value to many species” (WDFW 1999). The maps show current documented locations and listings of Priority species and habitats from the WDFW (2001, 2003) database.

Priority Habitats:

According to the PHS database, no priority habitats occur on-site. However, several small polygons identified as Urban Natural Open Space (UNOS), described as Seattle City parks and Green River Wetlands, including White Center Heights Park, wetland Salmon Creek 1 wetland and associated uplands north of White Center Heights Park, North Shorewood Park, Lakewood Park, and Roxhill Park, occur within a mile of the project area. Larger “Open Space Areas,” “Ravines” and “Riparian Habitats” occur over a mile from the project site, and include the larger Seahurst-Inglesea ravine to the south that drains to Salmon Creek, the West Seattle Open Space Areas to the west, the forested bluffs north of Westcrest Park & wooded hillslopes that include West Seattle Heron Colony site and Longfellow Creek to the north, and the Southern Heights and Arbor Heights Open Space “riparian” habitats east and southwest of the site, respectively (WDFW 2003). The PHS map indicates a “palustrine wetland” located just to the west of the project site. This wetland is identified by both the USFWS NWI (1987) map, Seattle, South Quadrangle and the King County (1990) Sensitive Areas Folio. The NWI (1987) indicates that the wetland consists of palustrine, forested and scrub-shrub vegetation classes that are seasonally flooded, and an open water vegetation class that is permanently flooded. The King County (1990) Sensitive Areas Map Folio depicts this wetland as Salmon Creek 1 wetland. The King County (1991) Inventory has rated Salmon Creek 1 wetland as a King County (2001) Class 2 wetland that consists of scrub-shrub and open water vegetation classes. The wetland is locally known as the White Center Bog. This wetland is discussed in a wetland delineation letter for the project site (Raedeke Associates, Inc. 2003).

The Duwamish Waterway, located more than one mile west of the project site, is shown to provide anadromous fish runs and critical spawning habitat for resident fish and priority fish species (WDFW 2003). Salmon Creek, a tributary to Puget Sound just over one mile south of the site, may also provide fish habitat (WDFW 2003). Information regarding fish resources is discussed in a separate report provided by the Watershed Company (2003).

Endangered, Threatened, and Sensitive Species

The Washington Department of Fish and Wildlife (2001, 2003) has no records of any federal- or state-listed endangered/threatened/ sensitive species of birds, mammals, reptiles, or amphibians known to be present on the project site (see Section VII of this Draft EIS). No priority species were observed on the project site during two documented field visits.

Bald eagle: The bald eagle is currently listed federally and in Washington State as a Threatened species (WDFW 1999, 2002). Because of a significant increase in bald eagle populations in Washington, the State has proposed to reclassify the bald eagle as a Sensitive species (Stinson et al. 2001) concurrent with the federal proposal for delisting of the eagle (Ms. Harriet Allen, WDFW, pers. comm. March 18, 2003), which has not yet occurred. The nearest bald eagle nest is located in Seahurst Park along the Puget Sound shoreline, approximately three miles southwest of the Park Lake Homes site. Other bald eagle nests are located 4 and 6 miles north of the project site along the Duwamish Waterway and Elliot Bay, respectively (WDFW 2003), and in Seward Park, approximately 6 miles east of the site.

Eagles likely forage along the Puget Sound to the west and the Duwamish Waterway to the east, most likely concentrating in areas with significant use by adult salmonids or waterfowl. The USFWS (2002) has determined that wintering bald eagles may occur in the vicinity of the project site (see Appendix B for agency correspondence). Wintering activities typically occur from October 31 through March 31. The WDFW (2001, 2003) PHS database shows no winter concentration areas or occurrence of wintering bald eagles within several miles of the project site. Wintering bald eagles may range over the Green/Duwamish River valley and along the Puget Sound; however, there is no documentation of regular or individual use within the project vicinity (J. Brookshire, WDFW pers. comm. March 4, 2003).

It is possible that bald eagles could use the larger trees on the eastern and western boundaries of the site as perch trees and may hunt waterfowl in the winter when the Salmon Creek 1 wetland or others nearby are inundated; however, no eagles were observed during our field visits to the project area. Eagles are not likely to perch in the trees on the project site due to the highly urbanized nature of the surrounding land use, including high pedestrian activity and frequent disturbance of vehicular traffic within and surrounding the project site.

Western pond turtle: The western pond turtle is currently listed federally as a Species of Concern and in Washington State as Endangered (WDFW 2002). An "individual occurrence" of a western pond turtle was documented at Lakewood Park, approximately 0.5 miles south of the project site. The male turtle originally found at Lake Garrett near Burien, was released in Lakewood Park and found there in 1988 "in poor condition with a hole in its shell", and eventually given to the Woodland Park Zoo (WDFW 2003). There have been no additional sightings of Western pond turtles at this park or in the vicinity of the project area (J. Brookshire WDFW, pers. comm. March 4, 2003). Given the degraded (relatively unvegetated and lack of woody cover) shoreline habitat and heavy public use of Lakewood Park, pond turtles most likely do not inhabit that site.

There are no recent records of western pond turtles from most of the lowlands of western Washington. Extensive, unsuccessful searches in western Washington suggest this species has been extirpated from the Puget Sound lowlands (Dvornich et al. 1997).

Puget Sound salmon: The Duwamish Waterway, approximately two miles east of the project site, provides habitat for the Chinook salmon and bull trout, both listed species. Information

regarding fish resources is discussed in a separate report provided by The Watershed Company (2003).

Other Priority Species

Great blue herons nest in colonies, building stick nests in large trees typically near a foraging area. These breeding colonies or “rookeries” are protected in Washington State as a Monitor species. The nearest great blue heron colony is depicted approximately two and a half miles southwest of the project site in Seahurst Park, but the current use or activity of this colony is not known (J. Brookshire, WDFW pers. comm. March 4, 2003). Great blue herons may perch in the more sheltered trees on the west portion of the property adjacent to the Salmon Creek 1 wetland. The scrub-shrub and emergent portions of the wetland provide fresh water foraging habitat typical of great blue herons. However, due to the urbanized nature of the site and frequent use of the pedestrian trail along the western edge of the wetland, it is unlikely that herons would remain in the area for any period of time. There are too few large trees in a contiguous area to provide nesting habitat for a heron colony.

Four osprey nests are located depicted along the Duwamish waterway, the nearest being one and a half miles east of the site. Breeding areas of the osprey, a fish-eating hawk, are considered by the WDFW (1999, 2002) as a priority habitat. Ospreys build nests on open platforms such as snags, pilings and manmade structures near or within the water body where they forage on fish. The project site is not close to a large water body with fish, and thus does not provide habitat for osprey.

Wildlife Habitat Networks or Corridors

Wildlife habitat networks or corridors can take different forms, depending on the landscape. Corridors can be in the form of hedgerows or fencerows that connect woodlots in an agricultural landscape. In a fragmented forested landscape, corridors are linear patches of forest or forested riparian zones connecting larger patches of forest. They can also be non-forested linear patches, such as utility easements, or wetland and stream systems, in a landscape that is forested. In an urban environment, parks and native forestland can act as corridors connecting otherwise disjunct habitat for wildlife species.

Corridors can provide: (1) habitat for certain species; (2) movement pathways; (3) extensions of foraging ranges for large, wide-ranging species; and (4) escape from predators (Harris 1984, Levenson 1981, Noss 1987, Noss and Harris 1986, Simberloff and Cox 1987). Corridors may also have disadvantages, such as: (1) providing conduits for disease, fire, pests, and exotic species; (2) increasing exposure to predation; and (3) potentially having negative genetic impacts on a population (Noss 1987, Simberloff and Cox 1987).

The project site provides very little habitat for wildlife with the exception of the narrow stands of forest and shrub on the east and west property boundaries. These habitats are the most distinct corridors on the property because they are contiguous with larger forested habitats, wetland habitats, and other undeveloped properties that have wildlife value. Other off-site areas, such as the habitats associated with Westcrest Park and the wooded ravines in the Shorewood area north of Seahurst Park, are contiguous with other larger open spaces with more extensive areas of native habitat. These include the forested slopes bordering the west side of the Duwamish valley contiguous with Westcrest Park, and the shoreline of Puget Sound contiguous with forested areas associated with Seahurst Park.

